

What is claimed is:

1. A device for treating a tissue adjacent a body lumen comprising:

an elongated probe having a proximal end, a distal end, and a longitudinal axis

wherein the elongated probe can be inserted into the body lumen; and

5 an ultrasonic generator for providing ultrasonic energy to the elongated probe for emission along the longitudinal axis of the elongated probe to the tissue adjacent the body lumen, wherein the ultrasonic energy creates a standing transverse wave in the elongated probe such that a plurality of nodes and a plurality of anti-nodes are formed along the longitudinal axis of the elongated probe to treat the tissue adjacent the body lumen.

10 2. The device of claim 1, wherein the tissue adjacent the body lumen includes abnormally growing cells.

3. The device of claim 1, wherein the body lumen is a uterus.

4. The device of claim 1, wherein the tissue includes cancer cells.

15 5. The device of claim 1, wherein the elongated probe is at least partially covered with a sheath.

6. The device of claim 5, wherein the sheath creates an aspiration passage between the elongated probe and the sheath.

7. The device of claim 5, wherein the sheath is moveable relative to the elongated probe.

8. The device of claim 5, wherein the sheath is flexible.

9. The device of claim 5, wherein the sheath is at least partially covered by an outer sheath.
10. The device of claim 5, wherein the elongated probe is coupled to a handle that controls the movement of the sheath.
11. The device of claim 1, further comprising a light transmitting element that can be inserted  
5 into the body lumen for obtaining optical data from the tissue.
12. The device of claim 11, wherein the optical data is an image of the tissue.
13. The device of claim 11, wherein the optical data is used to guide movement of the elongated probe.
14. The device of claim 11, wherein the optical data is a magnetic resonance image.
15. The device of claim 1, wherein an amount of ultrasonic energy to be applied to the tissue adjacent the body lumen is a function of an amplitude and a frequency of vibration of the elongated probe.
16. The device of claim 1, wherein the ultrasonic energy has a frequency that destroys water-laden tissues while not harming high-collagen connective tissue or other fibrous tissues.
- 15 17. The device of claim 1, wherein the ultrasonic energy has a frequency in the range of about 20,000 Hertz to about 80,000 Hertz.
18. The device of claim 1, wherein the ultrasonic energy has a frequency in the range of about 20,000 Hertz to about 35,000 Hertz.

19. A device for treating gynecological diseases by removing targeted cells on a surface of a body cavity comprising:

a member having a proximal end, a distal end, and a longitudinal axis; and

an ultrasonic generator for providing ultrasonic energy to the member and

5 generating an area of cavitation along the longitudinal axis of the member to remove targeted cells on the surface of a body cavity.

20. The device of claim 19, wherein the targeted cells include abnormally growing cells.

21. The device of claim 19, wherein the body cavity is a uterus.

22. The device of claim 19, wherein the targeted cells include cancer cells.

23. The device of claim 19, wherein the ultrasonic energy creates a standing transverse wave in the member such that a plurality of nodes and anti-nodes are formed along the longitudinal axis of the member.

24. The device of claim 19, wherein the member is at least partially covered with a sheath.

25. The device of claim 24, wherein the sheath creates an aspiration passage between the  
15 member and the sheath.

26. The device of claim 24, wherein the sheath is moveable relative to the member.

27. The device of claim 24, wherein the sheath is flexible.

28. The device of claim 24, wherein the sheath is at least partially covered by an outer sheath.

29. The device of claim 24, wherein the member is coupled to a handle that controls the movement of the sheath.

30. The device of claim 19, further comprising a light transmitting element that can be inserted into the body cavity for obtaining optical data from the targeted cells.

5 31. The device of claim 30, wherein the optical data is an image of the cells.

32. The device of claim 30, wherein the optical data is used to guide movement of the member.

33. The device of claim 30, wherein the optical data is a magnetic resonance image.

34. The device of claim 19, wherein an amount of ultrasonic energy to be applied to the targeted cells on the surface of a body cavity is a function of an amplitude and a frequency of vibration of the member.

35. The device of claim 19, wherein the ultrasonic energy has a frequency that destroys water-laden targeted cells while not harming high-collagen connective tissue or other fibrous tissues.

15 36. The device of claim 19, wherein the ultrasonic energy has a frequency in the range of about 20,000 Hertz to about 80,000 Hertz.

37. The device of claim 19, wherein the ultrasonic energy has a frequency in the range of about 20,000 Hertz to about 35,000 Hertz.

38. A method of treating a tissue adjacent a body lumen, the method comprising:

(a) inserting a flexible member comprising a longitudinal axis into the body lumen;  
and

(b) providing ultrasonic energy from an ultrasonic generator to the flexible member  
for emission along the longitudinal axis of the flexible member to the tissue  
adjacent the body lumen.

39. The method of claim 38, wherein the tissue adjacent the body lumen includes abnormally growing cells.

40. The method of claim 38, wherein the body lumen is a uterus.

41. The method of claim 38, wherein the tissue includes cancer cells.

42. The method of claim 38, wherein the ultrasonic energy creates a standing transverse wave in the member such that a plurality of nodes and anti-nodes are formed along the longitudinal axis of the member.

43. The method of claim 38, wherein the member is at least partially covered with a sheath.

44. The method of claim 43, wherein the sheath creates an aspiration passage between the member and the sheath.

45. The method of claim 43, wherein the sheath is moveable relative to the member.

46. The method of claim 43, wherein the sheath is flexible.

47. The method of claim 43, wherein the sheath is at least partially covered by an outer sheath.
48. The method of claim 43, wherein the member is coupled to a handle that controls the movement of the sheath.
- 5 49. The method of claim 38, further comprising inserting a light transmitting element into the body lumen to obtain optical data from the tissue.
50. The method of claim 49, wherein the optical data is an image of the tissue.
51. The method of claim 49, wherein the optical data is used to guide movement of the member.
52. The method of claim 49, wherein the optical data is a magnetic resonance image.
53. The method of claim 38, wherein an amount of ultrasonic energy to be applied to the tissue adjacent the body lumen is a function of an amplitude and a frequency of vibration of the member.
54. The method of claim 38, wherein the ultrasonic energy has a frequency that destroys  
15 water-laden tissues while not harming high-collagen connective tissue or other fibrous tissues.
55. The method of claim 38, wherein the ultrasonic energy has a frequency in the range of about 20,000 Hertz to about 80,000 Hertz.
56. The method of claim 38, wherein the ultrasonic energy has a frequency in the range of about 20,000 Hertz to about 35,000 Hertz.

57. A method for treating gynecological diseases by destroying targeted cells on a surface of a body cavity, comprising the steps of:

- (a) inserting a member having a longitudinal axis into the body cavity;
- (b) providing ultrasonic energy to the member and generating an area of cavitation  
5 along the longitudinal axis of the member; and

(c) sweeping the member over the surface of the body cavity to destroy the targeted cells.

58. The method of claim 57, wherein the targeted cells include abnormally growing cells.

59. The method of claim 57, wherein the body cavity is a uterus.

60. The method of claim 57, wherein the targeted cells include cancer cells.

61. The method of claim 57, wherein the ultrasonic energy creates a standing transverse wave in the member such that a plurality of nodes and anti-nodes are formed along the longitudinal axis of the member.

62. The method of claim 57, wherein the member is at least partially covered with a sheath.

15 63. The method of claim 62, wherein the sheath creates an aspiration passage between the member and the sheath.

64. The method of claim 62, wherein the sheath is moveable relative to the member.

65. The method of claim 62, wherein the sheath is flexible.

66. The method of claim 62, wherein the sheath is at least partially covered by an outer sheath.

67. The method of claim 62, wherein the member is coupled to a handle that controls the movement of the sheath.

5 68. The method of claim 57, further comprising the step of inserting a light transmitting element into the body cavity for obtaining optical data from the targeted cells.

69. The method of claim 68, wherein the optical data is an image of the cells.

70. The method of claim 68, wherein the optical data is used to guide movement of the member.

71. The method of claim 68, wherein the optical data is a magnetic resonance image.

72. The method of claim 57, wherein an amount of ultrasonic energy to be applied to the targeted cells on the surface of the body cavity is a function of an amplitude and a frequency of vibration of the member.

73. The method of claim 57, wherein the ultrasonic energy has a frequency that destroys  
15 water-laden targeted cells while not harming high-collagen connective tissue or other fibrous tissues.

74. The method of claim 57, wherein the ultrasonic energy has a frequency in the range of about 20,000 Hertz to about 80,000 Hertz.



75. The method of claim 57, wherein the ultrasonic energy has a frequency in the range of about 20,000 Hertz to about 35,000 Hertz.

76. The method of claim 57, wherein the member is substantially flexible.

77. The method of claim 57, further comprising the step of aspirating fluids and debris from

5 the targeted cells away from the area of cavitation.